

Remarks/Argument

This paper is submitted responsive to the office action mailed February 9, 2007. Reconsideration of the application in light of the accompanying remarks and amendments is respectfully requested.

In the aforesaid action, the Examiner indicates that claim 5 is allowed and that claim 8 contains allowable subject matter. All other claims are rejected.

In the aforesaid office action, the Examiner rejected claims 1, 9-12 and 24-26 as obvious over a combination of US 6074771 to Cubukcu et al. (hereafter "Cubukcu") and US 6139810 to Gottzmann et al. (hereafter "Gottzmann"). Claims 2, 3, 6 and 7 were rejected as obvious over Kubukcu, Gottzmann and US 4640875 to Makiel (hereafter "Makeil").

Independent claim 1 calls for a bipolar plate between two fuel cells, wherein the bipolar plate and at least one of the fuel cells define opposed surfaces. Claim 1 further requires a continuous fiber tow in a closed loop structure forming a substantially gas impermeable seal between the opposed surfaces.

Cubukcu discloses a ceramic composite electrolyte device, and discloses components such as bipolar foil member 50 and photolithographic member 60 which are sealed to each other by metal to metal welds. The Examiner concedes that Cubukcu does not disclose the seal of claim 1, but asserts that Gottzmann teaches this subject matter. In response to arguments submitted previously, the Examiner focuses on an explanation of the bipolar foil of Cubukcu. The thrust of the argument against this rejection is that Cubukcu does not disclose or suggest a seal in the location of the presently claimed seal, and that the secondary references do not cure this deficiency.

Cubukcu discusses sealing only in connection with sealing "arm"12 so that it can be used as both an inlet and an outlet. This is done with foil 50 (Fig. 13A). This seal has nothing to

do with the seal of the present invention. Further, even if the seal were construed to meet the seal of the present invention, it is not at all a continuous fiber tow as claimed. Cubukcu is significantly deficient as compared to claim 1.

Gottzmann, in addition to being non-analogous art and teaching a radically different structure than that which is claimed, also teaches no kind of seal which would be compatible with the seal that is necessary for Cubukcu to function. Cubukcu, as mentioned above, teaches a flat foil 50 to divide arm 12 into both an inlet and an outlet. Clearly this would be impossible with a seal such as that disclosed in Gottzmann. To try to piece the teachings of Kubukcu and Gottzmann together results in an inoperative structure.

It is also noted that Kubukcu appears to the undersigned to be totally silent on the point of creating a seal between adjacent fuel cells. The Examiner speculates that such a seal would be necessary, but there is no teaching in either of Kubukcu or Gottzmann that has any relation to such a seal.

Based upon the foregoing, reconsideration of the all rejections in this application based upon the combination of Kubukcu and Gottzmann is respectfully requested.

In addition to the above, the arguments previously submitted are reiterated here. Gottzmann does not disclose a solid oxide fuel cell stack with at least two fuel cell components and a continuous fiber tow wrapped into a closed-loop structure forming a substantially gas impermeable seal between opposed surfaces of the components. Rather, in a completely different environment, Gottzmann discloses an O-ring 50 which is between tube sheet 21, outer wall 54 of reaction tube 34, and a sleeve flange 58. None of these structures remotely resembles the structures which define the opposed surfaces in claim 1. Further, none of these structures or teachings in Gottzmann related thereto would lead a person skilled in the art to

believe that the O-ring 50 of Gottzmann could be substituted for the metal to metal weld called for in Kubukcu. The Gottzmann disclosure is a very different overall device, with an O-ring seal in a very different type of location. It is submitted that there is clearly no proper motivation to select the O-ring from Gottzmann and insert it into the device of Kubukcu in place of the welding clearly called for therein.

Independent claim 24 calls for similar subject matter and further adds a compression stop disposed between the two opposed surfaces. The Examiner states that Gottzmann teaches a compression stop extending from one of the fuel cell components to another fuel cell component and that this compression stop is frame like in shape and has a groove to hold the seal member. The Examiner refers to Figures 1-4 and column 7, line 8 to column 10, line 35, of Gottzmann.

First, it is pointed out that the Gottzmann device is not at all a fuel cell and, therefore, that Gottzmann does not have fuel cell components between which a compression stop could be located.

Second, if the Examiner considers the recess illustrated in Figure 4 of Gottzmann to meet the limitations of claim 24, it should be appreciated that this structure is completely incompatible with incorporation into Kubukcu. The members joined in Kubukcu are metal foils which are welded together. A metal foil would present difficulty to a person of skill in the art in trying to incorporate a recess such as that shown in Figure 4. A material far more rigid than the foil of Kubukcu would be needed. Further, Gottzmann positioned the O-ring between circular concentric surfaces in Figure 4, which do not at all resemble the surfaces called for by claim 24. In short, it is submitted that there is no suggestion to combine Kubukcu with Gottzmann, no teaching that indicates how a person skilled in the art should do such combining, and a clear inconsistency

between the structures of Kubukcu and Gottzmann which leads to the inescapable conclusion that a person of skill in the art would not consider Gottzmann as teaching anything pertinent to the claims of the present application or the teachings of Kubukcu.

Reconsideration of the rejections of claims 1 and 24 is therefore respectfully requested.

Dependent claims 2, 3, and 6-7 and 9-12 all depend from claim 1 and are submitted to be allowable based upon this dependency and also in their own right. Dependent claims 25-26 depend from claim 24 and are submitted to be allowable based upon this dependency as well.

Claims 25 and 26 call for a frame, and for the opposed surfaces to be substantially planar with the compression stop extending from one of the substantially planar surfaces. Neither of Kubukcu nor Gottzmann discloses the frame. Further, positioning of the compression stop between two substantially planar surfaces more clearly highlights the incompatibility of the teachings of Kubukcu and Gottzmann, and is yet another feature which must be totally ignored from Gottzmann in order to arrive at the subject matter of claim 26.

Based upon the foregoing, it is submitted that all claims pending herein are allowable over the art of record, and early and favorable action is respectfully solicited.

An earnest and thorough effort has been made to respond to all issues raised in the aforesaid office action and place the claims in condition for allowance over all art of record. If, upon considering this response, the Examiner believes that issues remain which can be resolved by telephone interview, the Examiner is invited to contact the undersigned to discuss same.

Authorization for an extension of time accompanies this paper. It is believed that no additional fee is due in connection with this paper. If any fee is due, please charge

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same to deposit account no. 02-0184.

Respectfully submitted,  
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